

Solve for the Pt of Intersection

$$y_1 = 4x - 5 \quad y_2 = \frac{x}{2} + 4$$

$$y_1 = y_2$$

Apr 27-11:57 AM

Solve for the Pt of Intersection

$$y_1 = 4x - 5 \quad y_2 = \frac{1}{2}x + 4$$

$$y_1 = y_2$$

$$4x - 5 = \frac{1}{2}x + 4$$

$$2(4x - 5) = 1x + 8$$

$$8x - 10 = x + 8$$

$$8x - 10 = x + 8$$

$$8x - 1x - 10 = 8$$

$$7x - 10 = 8$$

$$7x = 18$$

$$x = \frac{18}{7}$$

$$x = \frac{18}{7}$$

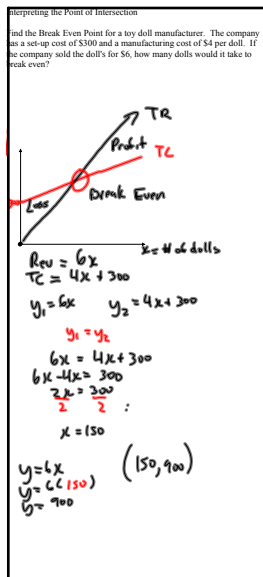
$$y = \frac{18}{7} - 5$$

$$y = \frac{18}{7} - \frac{35}{7}$$

$$y = -\frac{17}{7}$$

$$(\frac{18}{7}, -\frac{17}{7})$$

Apr 27-11:57 AM



Apr 27-2:43 PM

Interpreting the Point of Intersection

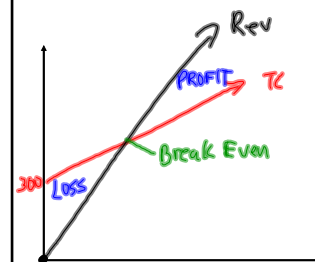
Find the Break Even Point for a toy doll manufacturer. The company has a set-up cost of \$300 and a manufacturing cost of \$4 per doll. If the company sold the doll's for \$6, how many dolls would it take to break even?

$$TC = 300 + 4d$$

$$Rev = 6d$$

Revenue  
= amount of  
\$ collected  
by the sale  
of the  
dolls

Total Cost = cost per  
unit plus the set up cost



Apr 27-2:43 PM

$$TC = 300 + 4d \quad Rev = 6d$$

$$y_1 = 4x + 300 \quad y_2 = 6x$$

$$y_1 = y_2$$

$$4x + 300 = 6x$$

$$300 = 6x - 4x$$

$$300 = \frac{2x}{2}$$

$$150 = x$$

$$y_2 = 6x$$

$$y_2 = 6(150)$$

$$y_2 = 900$$

At of Intersection  
 $(150, 900)$

Apr 27-2:54 PM

At 150 dolls the toy doll manufacturer will break even at \$900. Before 150 dolls the company will lose money. After 150 dolls the company will earn a profit.

Apr 27-3:01 PM

p158 q6 Cost Comparison  $x = \# \text{ of movies}$

Movies to Go =  $2.50x$   
 Video rentals =  $2.00x + 10$

$y_1 = 2.50x$   $y_2 = 2.00x + 10$

$y_1 = y_2$   
 $2.50x = 2.00x + 10$   
 $2.50x - 2.00x = 10$   
 $.50x = 10$   
 $\frac{.50x}{.50} = \frac{10}{.50}$

$x = 20$

$y_1 = 2.50x$   
 $y_1 = 2.50(20)$   
 $y = 50$

$(20, 50)$

At 20 movies both stores will charge \$50. At less than 20 movies Movies to Go is cheapest. After 20 movies Video rentals is cheapest.

p158 {159 q 7, 9, 10} //

Apr 27-3:05 PM

p158 q6 Cost Comparison  $x = \# \text{ of movies}$

Movies to Go =  $2.50x$   
 Video rentals =  $2.00x + 10$

$y_1 = 2.50x$   $y_2 = 2.00x + 10$

$y_1 = y_2$   
 $2.50x = 2.00x + 10$   
 $2.50x - 2.00x = 10$   
 $.50x = 10$   
 $\frac{.50x}{.50} = \frac{10}{.50}$

$x = 20$

$y_1 = 2.50x$   
 $y_1 = 2.50(20)$   
 $y = 50$

$(20, 50)$

At 20 movies both stores will charge \$50. At less than 20 movies Movies to Go is cheapest. After 20 movies Video rentals is cheapest.

p158 {159 q 7, 9, 10} //

Apr 27-3:05 PM